

(C) WPI / DERWENT  
AN - 2001-538891 [60]  
AP - JP19990317904 19991109  
CPY - TOKE  
DC - E36 H04 J01 J04 X16  
DR - 1066-P 1066-U 1532-P 1532-U  
FS - CPI;EPI  
IC - C01B3/38 ; C01B3/56 ; H01M8/06  
MC - E11-Q01 E11-Q02 E31-A02 E31-N05C H04-E06 H04-F02E J04-E02 N06  
- X16-C17

PR. 2001  
P... 1-2 = 2

M3 - [01] C101 C550 C810 M411 M424 M720 M740 M904 M905 N105 N164 N209 N224  
- N262 N441 N513 N514 N515 Q431 Q436; R01532-K R01532-P; 1532-P 1532-U  
- [02] C106 C108 C530 C730 C800 C801 C802 C803 C805 C807 M411 M424 M720  
M740 M750 M904 M905 M910 N105 N164 N209 N224 N262 N309 N343 N441 N513  
N514 N515 Q431 Q436; R01066-K R01066-P R01066-X; 1066-P 1066-U  
PA - (TOKE ) TOSHIBA KK  
PN - JP2001139304 A 20010522 DW200160 C01B3/38 005pp  
PR - JP19990317904 19991109  
XA - C2001-160633  
XIC - C01B-003/38 ; C01B-003/56 ; H01M-008/06  
XP - N2001-400482  
AB - JP2001139304 NOVELTY - The modifier has sealed part filled with  
modification catalyst layers which convert heating gas (I) containing  
methane and water vapor to hydrogen rich gas, heating tube made of  
porous ceramic substance of zirconite adjoining partitions divided by  
catalyst layers for heating gas (I). Header in sealed part supplies  
heat carrier to heating tube and another header and outlet collects  
carbon dioxide.  
- DETAILED DESCRIPTION - The modifier has a inlet part which supplies  
heating gas containing mixture of methane and water vapor to the  
partitions divided by the modification catalyst layer filled in sealed  
part. The heating tube made of porous ceramic substance of zirconite  
through which heat carrier passes, for permeating only carbon dioxide,  
is arranged to adjoining partition. The header is provided in sealed  
part and circulates a heat carrier to each heating tube. The heating  
gas is heated in the heating tube in the presence of carrier and  
catalyst converts heating gas into a hydrogen-rich gas. Another header  
provided in sealed part and outlet part collect obtained carbon  
dioxide.  
- USE - For formation of hydrogen rich gas from methane and water vapor  
and for collection of carbon dioxide separately.  
- ADVANTAGE - Since carbon dioxide is not released and is collected  
separately by modifier, global warming caused by carbon dioxide  
released into atmosphere is reduced. The modifier sets the temperature  
of the waste gas as heating source ejected from gas turbines to 600  
deg. C.  
- (Dwg.0/5)  
CN - R01532-K R01532-P R01066-K R01066-P R01066-X  
DRL - 1532-P 1532-U 1066-P 1066-U  
IW - FUEL MODIFIED CATALYST LAYER CONVERT HEAT GAS METHANE WATER HYDROGEN  
RICH GAS POROUS CERAMIC HEAT TUBE ADJOIN LAYER HEADER OUTLET PART  
COLLECT CARBON  
IKW - FUEL MODIFIED CATALYST LAYER CONVERT HEAT GAS METHANE WATER HYDROGEN  
RICH GAS POROUS CERAMIC HEAT TUBE ADJOIN LAYER HEADER OUTLET PART  
COLLECT CARBON  
NC - 001  
OPD - 1999-11-09  
ORD - 2001-05-22  
PAW - (TOKE ) TOSHIBA KK  
TI - Fuel modifier has catalyst layers for converting heating gas of